



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

## PUBLICATIONS BY OFFICERS AND STUDENTS OF THE DEPARTMENT OF BOTANY, COLUMBIA UNIVERSITY

### 1. MEMOIRS OF THE DEPARTMENT :

Vol. 1. A Monograph of the North American Species of the Genus *Polygonum* (1895). By John Kunkel Small, Fellow in Botany, 1893-1895; Curator of the Herbarium, 1895-1898.

Quarto, 178 pages, 84 plates. Price \$6.00.

Vol. 2. A Monograph of the North American Potentilleae (1898). By Per Axel Rydberg, Fellow in Botany, 1896-7.

Quarto, 224 pages, 112 plates. Price \$6.00.

### 2. CONTRIBUTIONS FROM THE DEPARTMENT :

Vol. 1. Nos. 1-25. 1886-1892. Price \$5.00.

Vol. 2. Nos. 26-50. 1892-1894. Price \$5.00.

Vcl. 3. Nos. 51-75. 1894-1895. Price \$5.00.

Vol. 4. Nos. 76-100. 1895-1896. Price \$5.00.

Vol. 5. Nos. 101-125. 1896-1897. Price \$5.00.

Vol. 6. Nos. 126-150. 1897-1898. Price \$5.00.

Vol. 7. Nos. 151-(current).

3. A Text-book of General Lichenology (1896). By Albert Schneider, Fellow in Botany, 1895-1896.

Octavo, 230 pages, 76 plates. Price \$4.25 (cloth); \$3.80 (paper). Published by Willard N. Clute & Co. Binghamton, N. Y.

The Department invites propositions relative to exchanges of herbarium material or botanical books for any of the above named publications. Address Professor L. M. Underwood, Columbia University, N. Y. City. A list of the titles of Contributions with prices of such as can be separately supplied, may be had on application. Many of the earlier numbers are out of print, but a few complete sets can be supplied.

4. An Illustrated Flora of the Northern United States, Canada, and the British Possessions from Newfoundland to the Parallel of the Southern Boundary of Virginia, and from the Atlantic Ocean westward to the 102d Meridian (1896-1898). By Nathaniel Lord Britton, Professor of Botany, 1891-1896; Emeritus Professor 1896,—and Hon. Addison Brown.

Three volumes, royal octavo. Vol. 1, 612 pages; Vol. 2 642 pages; Vol. 3, 588 pages; 4162 figures in the text, illustrating, every species described.

Published by Charles Scribner's Sons, New York. Price, in cloth, \$9.00 for the three volumes; with the indexes and keys bound separately, \$10.00.

5. Our Native Ferns and their Allies. (Fifth Edition) 1896. By Lucien Marcus Underwood, Professor of Botany, 1896-.

Duodecimo, 156 pages, 35 figures. Published by Henry Holt & Co. New York. Price \$1.00.

6. A Text-book of General Botany (1897). By Carlton Clarence Curtis, Assistant in Botany, 1892-1895; Tutor in Botany, 1895-.

Octavo, 360 pages; 87 illustrations. Published by Longmans, Green & Co. New York. Price \$3.00.

# **UNDERWOOD'S**

## **Moulds, Mildews and Mushrooms.**

A Guide to the Systematic Study of the Fungi and Mycetozoa and their Literature. Illustrated with ten heliotype plates, one colored. By LUCIEN M. UNDERWOOD.

**12mo. Pp. 236. Price \$1.50 net.**

Contains synopses of the genera of fleshy and parasitic fungi, with historical sketch of the study of mycology in America, and copious references to the literature of the subject.

Sufficiently technical for accuracy, but intended to enable the novice to recognize the systematic position of the ordinary fungi of fields and woods. Particular attention is paid to the edible species.

---

### **HENRY HOLT & CO.,**

29 West 23d Street,

NEW YORK.

---

MEMOIRS FROM THE DEPARTMENT OF BOTANY OF  
COLUMBIA UNIVERSITY.

**Vol. II.**

## **A Monograph of the North American Potentilleae**

**By PER AXEL RYDBERG, Ph.D.**

Quarto, 225 pages, 112 full-page plates. Price, \$6.00 net.

A companion volume to Dr. John K. Small's "Monograph of the North American Species of the Genus *Polygonum*," published in 1895, which may be had at the same price. Address

**L. M. UNDERWOOD, Columbia University, New York City.**

---

## **Morphology and Histology of Plants**

Part I., **Morphology**, by H. H. RUSBY.

Part II., **Histology**, by S. E. JELLIFFE.

A modern botanical text-book, based upon correct principles of teaching, and with the topics arranged in logical sequence.

Especially adapted to prepare those without a teacher for the determination of plants and for the study of Vegetable Physiology.

**Large Octavo, 382 Pages, 693 Illustrations.**

Sent postpaid on receipt of three dollars, by either of the authors, at 115 West 68th Street, N. Y. City. Table of Contents mailed upon application.

WET AND DRY  
**Cryptogamic and Phaenogamic**  
PLANT MATERIAL  
collected and preserved especially  
**FOR CLASS STUDY.**

Microscopes, Lenses, Cover Glasses and Slides, Forceps, Scalpels and Needles.  
"Laboratory Note Book" of high grade Drawing Paper with alternate blank  
and ruled pages. Glassware, Stains, Mounting Paper, etc.

**Cambridge Botanical Supply Co.,**  
**CAMBRIDGE, MASS.**

Everything Useful to Botanists.

---

**Living Plants and Their Properties**

By PROF. J. C. ARTHUR, *Purdue University*, and  
PROF. D. T. MACDOUGAL, *Bedford Park, New York City*.

A timely book of 12 chapters dealing with the special senses of plants, development of irritability, compass plants, sensitive plants, effects of cold, growth of leaves, significance of color, comparison of plants and animals, etc., in a non-technical manner. Original illustrations, interesting, comprehensive and thoroughly modern. Printed on enamelled paper, 30 illustrations, 242 + 8 pages, marginal sub-titles. Handsomely bound in cloth. Postpaid, \$1.25.

Send orders to Dr. D. T. MACDOUGAL, Bedford Park, New York City, or to MORRIS AND WILSON, University Book Store, Minneapolis, Minn.

**COMMENTS.**

It is a collection of delightfully written essays on certain of the more important and interesting features of living plants in the broadest sense. The facts set forth are in all cases the latest results of investigation in the various lines, and the language is simple and non-technical.—*Plant World*.

The book will make an admirable addition to the scientific alcove of every public library.—Prof. C. E. BESSEY.

It is an interesting volume to all who care to know what science has recently discovered in physiology and pathology of the vegetable kingdom.—*New York World*.

---

**A Text-Book of General Lichenology**

With Descriptions and Figures of the Genera Occurring in the Northeastern  
United States.

By **ALBERT SCHNEIDER, M. S., M.D.**

The only modern work on North American Lichens, including a discussion of their Morphology and Physiology, with a special reference to the phenomena of symbiosis.

Large octavo, 230 pages, 76 full-page plates. Price in paper, net, \$3.80; in cloth, \$4.25. Sample pages will be sent on application.

PUBLISHED BY

**WILLARD N. CLUTE & COMPANY, Binghamton, N. Y.**

---

Back numbers of the BULLETIN OF THE TORREY BOTANICAL CLUB wanted to complete files, as follows:

Vol. 7 (1880) Nos. 1, 9.

Vol. 14 (1887) Nos. 1, 2.

Vol. 8 (1881) Nos. 2, 10, 11.

Vol. 15 (1888) any numbers.

Vol. 9 (1882) Nos. 1, 5.

Vol. 16 (1889) Nos. 3, 4.

Vol. 11 (1884) Nos. 1, 2, 3.

Vol. 17 (1890) Nos. 4, 8, 9, 10, 12.

Vol. 12 (1885) Nos. 1, 2, 3.

Vol. 18 (1891) No. 1.

Contributions of duplicate numbers requested of members of the Club. Other possessing numbers invited to state prices.

ADDRESS **TORREY BOTANICAL CLUB,**

COLUMBIA UNIVERSITY, NEW YORK CITY

PUBLICATIONS

OF

The New York Botanical Garden

---

**Journal of the New York Botanical Garden**, monthly, illustrated, containing notes, news and non-technical articles of general interest. Free to all members of the Garden. To others, 10 cents a copy; \$1.00 a year. [Not offered in exchange.] Subscriptions and remittances should be sent to 41 North Queen street, Lancaster, Pa., or Bronx Park, New York City.

**Bulletin of the New York Botanical Garden**, containing the reports of the Director-in-Chief and other official documents, and technical articles embodying the results of investigations carried out in the Garden. Nos. 1-5, 449 pp., 3 maps, and 12 plates, 1896-1900. Free to all members of the Garden. To others, 25 cents a copy.

**Memoirs of the New York Botanical Garden**, Vol. 1. An Annotated Catalogue of the Flora of Montana and the Yellowstone Park, by Dr. Per Axel Rydberg, assistant curator of the museums. An arrangement and critical discussion of the Pteridophytes and Phanerogams of the region with notes from the author's field book and including descriptions of 163 new species. ix + 492 pp. Roy. 8vo, with detailed map. Price to members of the Garden, \$1.00. To others, \$2.00. [Not offered in exchange.]

**Contributions from the New York Botanical Garden**. A series of technical papers written by students or members of the staff, and reprinted from journals other than the above. Price, 25 cents each.

- No. 1. Symbiosis and Saprophytism, by Dr. D. T. MacDougal.
- No. 2. New Species from western United States, by Dr. Per Axel Rydberg.
- No. 3. The dichotomous *Panicums*: some new Species, by Geo. V. Nash.
- No. 4. *Delphinium Carolinianum* and related Species by Dr. Per Axel Rydberg.
- No. 5. Studies on the Rocky Mountain Flora I, by Dr. Per Axel Rydberg.
- No. 6. Notes and Descriptions of North American Plants I and II, by Dr. J. K. Small.
- No. 7. Vegetative Reproduction and Multiplication in *Erythronium*, by Frederick H. Blodgett.
- No. 8. Two New Species of *Grimmia* from Montana, by R. S. Williams.
- No. 9. Studies on the Rocky Mountain Flora II, by Dr. Per Axel Rydberg.

All subscriptions and remittances should be sent to

NEW YORK BOTANICAL GARDEN

BRONX PARK, NEW YORK CITY

ESTABLISHED 1851.

# EIMER & AMEND,

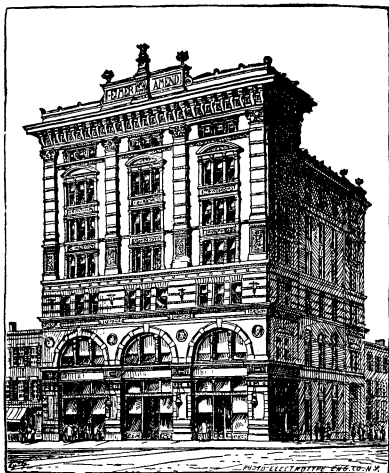
MANUFACTURERS AND IMPORTERS OF

Chemicals and Chemical Apparatus,

205, 207, 209 & 211 Third Ave.,

Corner of 18th Street

NEW YORK.



SOLE AGENTS FOR THE UNITED STATES  
OF NORTH AMERICA, FOR

E. March's Sæline Chemical Stone  
Ware.

Schleicher & Schuell's Chemically  
Pure and Common Filter Paper.

Doctor C. Scheibler's Saccharome-  
ters (Polariscopes),

Prof. Jolly's Specific Gravity Bal-  
ances, etc.

Le Brun F. Desmontes & Co., of  
Paris, Platinum.

H. Tronesdorff's C. P. Chemicals.

**SPECIALTIES:**—Bacterioscopical Apparatus, Normal Graduated Glass-  
ware, Porcelain from the Royal Berlin and Meissen Factories, Bohem-  
ian and German Glassware, Filter Papers, Agate Mortars, Pure  
Hammered Platina, Balances and Weights, Copperware, Bunsen's  
Burners and Combustion Furnaces, Apparatus and Chemicals for  
Sugar Chemists.

## LABORATORY OUTFITS

FOR

FERTILIZERS, ASSAYERS, UNIVERSITIES AND COLLEGES

GLASS-BLOWING, ETCHING, GRINDING AND REPAIRING

## PUBLICATIONS OF THE TORREY BOTANICAL CLUB.

### (1) BULLETIN.

A monthly journal devoted to general botany. Vol. 26 published in 1899 contained 659 pages of text and 23 full-page plates. Price \$3.00 per annum. For Europe 14 shillings. Dulau & Co., 37 Soho Square, London, are agents for England.

As the supply of several of the volumes is limited, libraries desiring to complete their files should apply at once. Yearly volumes 1-5 (1870-1874), One Dollar each. Vol. 6 (1875-1879), extending over five years, is furnished at the subscription price of Five Dollars. Vols. 7-16 (1880-1889), can only be had complete in orders for full sets.

Vols. 17-25 (1890-1898) are furnished at the published price of Two Dollars each, except Vols. 18 and 21, which can be had only in orders for full sets.

Single copies (20 cts.) will be furnished only when not breaking complete volumes.

### (2) MEMOIRS.

The subscription price is fixed at \$3.00 per volume in advance. The numbers can also be purchased singly and an invariable price is fixed for each.

Volume 1, No. 1.—Studies of the Types of various Species of the genus *Carex*. By L. H. Bailey. Price, \$1.00.

No. 2.—A List of the Marine Algæ hitherto observed on the Coasts of New Jersey and Staten Island. By Isaac C. Martindale. Price, 50 cents.

No. 3.—An Enumeration of the Hepaticæ collected by Dr. H. H. Rusby in South America, with descriptions of many new species. By Richard Spruce. Price, 75 cents.

No. 4.—On Seedless Fruits. By E. Lewis Sturtevant. Price, 75 cents.

Volume 2, No. 1.—On reserve Food Materials in Buds and surrounding Parts, with two plates. By Byron D. Halsted. (Only with full volumes.)

No. 2.—Contributions to the Botany of Virginia, with two plates. By Anna Murray Vail and Arthur Hollick. Price, 75 cents.

No. 4.—A Monograph of the North American Naiadaceæ of the Genus *Polygala*. By William E. Wheelock. Price, 75 cents.

Vol. 3, No. 1.—On the Flora of Western North Carolina and contiguous Territory. By John K. Small and A. A. Heller. (Only with full volumes.)

No. 2.—A Revision of the North American Naiadaceæ with illustrations of all the species. By Thomas Morong. Price, \$2.00.

No. 3.—An Enumeration of the Plants collected in Bolivia by Miguel Bang. By Henry H. Rusby. Price, 50 cents.

Vol. 4, No. 1.—Index Hepaticarum. Part 1, Bibliography. By Lucien M. Underwood. Price, 75 cents.

No. 2.—Report on the Botanical Exploration of Virginia during the Season of 1892. By John K. Small and Anna Murray Vail. Price, 50 cents.

No. 3.—An Enumeration of the Plants collected in Bolivia by Miguel Bang—II. By Henry H. Rusby. Price, 50 cents.

No. 4.—*Arachis hypogaea* L., with three plates. By Anna Stockton Pettit. Price, 50 cents.

No. 5.—Monograph of *Physalis* and related Genera. By P. A. Rydberg. Price, 75 cents.

Vol. 5, List of Pteridophyta and Spermatophyta growing without cultivation in Northeastern North America. Prepared by the Botanical Club, A. A. A. S. Price, \$3.00.

Vol. 6, No. 1.—An Enumeration of the Plants collected in Bolivia by Miguel Bang—III. By Henry H. Rusby. Price, \$1.25.

No. 2.—A Revision of the North American Isotheciaceae and Brachythecia. By Abel Joel Grout. Price, 50 cents.

No. 3.—The Life History of *Sphaerella lacustris* (*Haematococcus pluvialis*). With two colored plates. By Tracy Elliot Hazen. Price, 50 cents.

No. 4.—A Review of the Genera of Ferns proposed prior to 1832. By Lucien M. Underwood. Price, 35 cents.

No. 5.—Notes on the Lichen Distribution in the Upper Mississippi Valley. By Bruce Firk. Price, 25 cents.

Vol. 7, The Hepaticae and Anthocerotae of California. With thirty five plates. By Marshall Avery Howe. Price, \$3.00.

Vol. 8, No. 1, Part 1.—The Comparative Embryology of the Rubiaceae. With our plates. By Francis Ernest Lloyd. Price, 50 cents.

Vol. 9, Monograph of the Erysiphaceae. By E. S. Salmon, F.L.S. Price, \$3.00.

(3) The Preliminary Catalogue of Anthophyta and Pteridophyta reported at growing within one hundred miles of New York, 1888. Price, \$1.00.

Address: **L. M. UNDERWOOD,**  
**COLUMBIA UNIVERSITY, NEW YORK CITY.**